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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,215	07/18/2003	Raymond C. Chiu	56547US002	2866
32692	7590	02/22/2005	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			SONG, SARAH U	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/623,215	CHIU ET AL.	
	Examiner	Art Unit	
	Sarah Song	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 21-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0504, 1204</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Invention I (claims 1-20) in the reply filed on December 20, 2004 is acknowledged.
2. Claims 21-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Information Disclosure Statement

3. The prior art documents submitted by the applicant in the Information Disclosure Statement filed on December 14, 2004 and May 17, 2004 have all been considered and made of record (note the attached copy of form PTO-1449).

Drawings

4. This application has been filed with fifteen (15) sheets of drawings, which have been approved by the Examiner.

Claim Objections

5. Claim 18 is objected to because of the following informalities: Examiner suggests changing "the wave guides" to -waveguides—in order to eliminate the lack of proper antecedent basis and to correct a typographical error. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-3, 5, 6, 8, 12-14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyano et al. (U.S. Patent Application Publication 2003/0118270 cited by Applicant) in view of Dragone et al. (U.S. Patent 5,926,586 cited by Applicant) and Hong (WO 86/02171 cited by Applicant).**

8. Regarding claims 1, 13 and 14, Miyano et al. discloses a method of making a plurality of waveguide resonator devices, the method comprising, positioning a precursor resonator structure 21 at a fixed separation from a plurality of waveguides. See Figure 6 and Paragraphs [0036]-[0037].

9. Miyano et al. does not expressly disclose the step of dividing or cutting the precursor resonator structure into a plurality of separate resonators or pieces, the precursor resonator structure being divided at locations between the waveguides.

10. Dragone et al. discloses a known method of mass-producing an optical device comprising the steps of dividing (by cutting) a precursor structure into a plurality of separate structures, the precursor structure being divided at locations between the waveguides. See Figure 2.

11. Miyano et al. and Dragone et al. are analogous art as pertaining to optical waveguide circuits.

12. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Miyano et al. to further comprise the step of, after the precursor resonator structure has been positioned relative to the waveguides, dividing the precursor resonator structure 21 into a plurality of separate resonator structures, the precursor resonator structure being divided at locations between the waveguides.

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13. The motivation for doing so would have been to provide ease of manufacturing for a multiplicity of identical devices.

14. Furthermore, Miyano et al. and Dragone et al. do not expressly disclose the method wherein the precursor resonator structure is positioned at a fixed spacing or separation relative to a plurality of sets of waveguides.

15. Hong discloses that the degree of coupling can be controlled by adjusting the spacing between a waveguide and a resonator structure.

16. Miyano et al. and Hong are analogous art as pertaining to waveguide resonators.

17. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to position the resonator structure at a fixed spacing or separation relative to the plurality of sets of waveguides of Miyano et al.

18. One of ordinary skill in the art would have been motivated to make the modification in order to optimize the degree of coupling and maintain the desired degree of coupling between the waveguide and resonator structure of Miyano et al.

19. Regarding claim 2, the step of dividing disclosed by Dragone et al. comprises cutting. See column 2, lines 10-11.

20. Regarding claim 3, the step of cutting disclosed by Dragone et al. comprises mechanical cutting with an abrasive tool (i.e. circular saw). See column 2, lines 11-12.

21. Regarding claims 5 and 6, Miyano et al. discloses the precursor resonator structure to be elongated and cylindrical. See Figure 6.

22. Regarding claim 8, Miyano et al. and Dragone et al. do not expressly disclose cutting at a plurality of locations spaced apart along a longitudinal axis of the precursor resonator structure.

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However, the step of cutting at a plurality of locations spaced apart along a longitudinal axis of the precursor resonator structure would have been obvious in order to result in the multiplicity of identical structures as desired by mass production.

23. Regarding claim 12, Miyano et al. and Dragone et al. do not expressly disclose the steps of depositing waveguides on a substrate, and the step of depositing a spacer layer over the waveguides and securing the precursor resonator structure to the spacer layer.

24. It is noted that the step of depositing waveguides on a substrate to form waveguides is well known in the art and would have been obvious in order to provide an efficient method of producing a plurality of waveguides simultaneously.

25. Hong discloses that the degree of coupling can be controlled by adjusting the spacing between a waveguide and a resonator structure.

26. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to deposit a spacer layer over the waveguides of Miyano et al.

27. One of ordinary skill in the art would have been motivated to make the modification in order to ensure that the desired degree of coupling is obtained and maintained between the waveguide and resonator structure of Miyano et al.

28. Furthermore, it is well known in the art to fix/secure components in order to prevent inadvertent movement between coupled components. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to fix the precursor structure adjacent to the waveguides of Miyano et al. in order to provide a more robust coupling arrangement.

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29. Regarding claim 18, Miyano et al. does and Dragone et al. do not expressly disclose the method wherein the precursor resonator structure is fixed adjacent to the waveguides prior to cutting. It is well known in the art to fix components in order to prevent inadvertent movement between coupled components. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to fix the precursor structure adjacent to the waveguides of Miyano et al. in order to provide a more robust coupling arrangement.

30. **Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyano et al. in view of Dragone et al. as applied to claim 1 above, and further in view of Ticknor (WO 03/036343 cited by Applicant).**

31. Regarding claim 4, Miyano et al. and Dragone et al. do not expressly disclose the abrasive tool to be a wire saw.

32. Ticknor discloses a wire saw for dividing an optical component.

33. Ticknor is analogous art as pertaining to an optical circuit.

34. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a wire saw as taught by Ticknor in order to provide a low-cost method.

35. **Claims 9-11, 15-17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyano et al. in view of Dragone et al. as applied to claim 1 or 14 as applicable above, and further in view of Sercel et al. (U.S. Patent Application Publication 2002/0037132).**

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36. Regarding claims 9-11 and 15-17, Miyano et al. and Dragone et al. do not expressly disclose the precursor resonator structure to be tubular, to include drawn glass or plastic, to include an optical fiber or a coated optical fiber, or to comprise a glass or plastic capillary.

37. Sercel et al. disclose a resonator structure comprising a coated optical fiber, which is also tubular or comprises a capillary. See Paragraphs [0105]-[0107]. It is further noted that optical fibers are typically comprised of drawn glass or plastic.

38. Sercel et al. is analogous art as pertaining to waveguide resonators.

39. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the optical fiber of Sercel et al. in the device of Miyano et al. in order to provide ease of alignment and assembly.

40. Regarding claims 19 and 20, Miyano et al. and Dragone et al. and Sercel et al. do not expressly disclose optical fibers coated with a material adapted to encourage bacterial growth, or a precursor resonator structure comprising a tube filled with a material having a refractive index that can be modified with an applied field. Such fibers are well known in the art and would have been obvious to one having ordinary skill in the art in order to provide an optical coupler with specialized functionality.

Conclusion

41. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

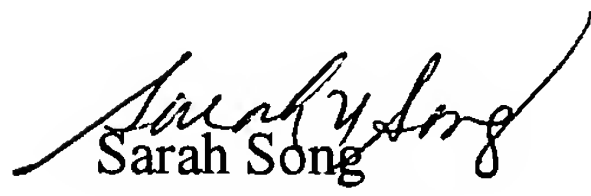
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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Song whose telephone number is 571-272-2359. The examiner can normally be reached on M-Th 7:30am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sarah Song
Patent Examiner
Group Art Unit 2874